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from Norfolk, Va., to San Francisco. In all there are 151 species, of which 31 are regarded as new. Ectæsthesius, allied to Quadrella, Lipæsthesius, Ovalipes, a new name for Platyonichus, and Tetrias, allied to Pinnixa, are the only new genera proposed. We notice the substitution of Uca for Gelasimus.

**Zoölogical Notes.** — The life history, habits, etc., of the tree toad, *Hyla arborea*, are exhaustively treated by H. Fischer Sigwart in *Vierteljahrschr. Naturf. Gesell. Zürich*, XXXIV, 4, 1898. The observations cover a period of about fifteen years, and he gives the dates of earliest appearance in spring, order of appearance and different organs during development and metamorphosis, color adaptation, variations, etc. One table shows by curves the relation of the loudness or quantity of the frog's song to the condition of the weather — the better the weather the louder the song.

Acalephs of the Fiji Islands are shown by Alexander Agassiz and A. G. Mayer (*Bull. Mus. Comp. Zoöl.*, XXXII, 9, 1899) to have a remarkable affinity to the forms from the West Indies. Thirty-eight species were taken, representing thirty-six genera, and with the exception of two rhizostomes all the genera are represented by Atlantic species, and in six cases specific differences could not be established between Atlantic and Pacific forms.

Ten new species of deep-sea Madreporaria are described by Major Alcock in his report on the collections of the Indian Survey steamer *Investigator*. The author points out many intimate affinities with the forms from medium depths of the North Atlantic, suggesting a sea connection in the past between the Atlantic and Indian Oceans, probably by way of the Mediterranean.

The classification of the different methods of monogenesis studied by Torrey (*Proc. Cal. Acad. Sci.*, Series 3, I, 345, 1898) in *Metridium fimbriatum*, occurring in San Francisco Bay, is as follows:

I. Longitudinal fission.
  *a*, equal.
  *b*, unequal.
    oral — aboral.
    aboral — oral.
II. Basal fragmentation.
III. Budding.
  *a*, pedal.
  *b*, œsophageal.

The paper also contains numerical data as to the relative frequency of each of these methods, and the author promises more in the future.

The circulatory system of lungless salamanders is compared with that of salamanders having lungs by Bethge (*Zeitsch. Wiss. Zool.*, LXIII, 680, 1898), who discusses the question of the seat of respiration in the lungless forms. He reaches the conclusion that the mouth, pharyngeal cavity, and integument participate in respiration to an essential extent. He thus is at variance with Marcacci and Camerano, who believe that cutaneous respiration is of little consequence.

The "cellules musculo-glandulaires" of the body wall of Owenia are reëxamined by Ogneff (*Biol. Centralb.*, XIX, February, 1899), who concludes that the structures described by Gilson do not exist. The peritoneal lining of the body cavity is closely adherent to the muscles of the body wall, but the elements do not differ from those in allied forms.

The endothelium of the heart in bony fishes, according to the recent studies of B. Nöldeki (*Zeitsch. Wiss. Zool.*, LXV, 1889), is, at least in part, of entodermal origin, but it is impossible to decide whether it all has that origin.

The eyes of annelids form the subject of the fifth part of R. Hesse's paper upon the organs for the recognition of light in the lower vertebrates (*Zeitsch. Wiss. Zool.*, LXV, 1899). Structural details of a large number of forms, as well as of physiological observations, are given.

New cestodes are described by F. Zschokke (*Zeitsch. Wiss. Zool.*, LXV, 1899) from various marsupials. The paper contains a revision of the species of Beortia and Linstowia *n. g.*

An interesting report on the "Extent and Condition of the Alewife Fisheries of the United States in 1896" has been prepared by H. M. Smith, and published in the *Report of the United States Fish Commission* for 1898. Notwithstanding the increase of catch from about 45,000,000 pounds in 1880 to about 62,000,000 pounds in 1896, the values of the catches have decreased; that of 1880 was placed at $526,000, while the catch of 1896, though one-third as large again, was worth only a little over $459,000.

Number 1 of Volume IX of the *Journal of Comparative Neurology* contains, besides the usual literary notices, the following articles:

"Observations on the Innervation of the Intracranial Vessels," by G. C. Huber; "Observations on the Blood Capillaries in the Cerebellar Cortex of Normal, Young, Adult, Domestic Cats," by F. S. Aby; "An Anomaly in the Internal Course of the Trochlear Nerve," by R. Weil; "Critical Review of Recent Publications of Bethe and Nissl," by A. Meyer; and "Report of the Association of American Anatomists," by D. S. Lamb.

We learn from *Natural Science* that Dr. Gregg Wilson points out that the lung of Ceratodus arises in the two-months-old larva as a mid-ventral diverticulum, and that the development of the pronephros is strikingly like that of urodeles.

The classification of the Coccidiidæ is treated by Louis Leger (*Am. Mus. d'Hist. Nat. Marseille*, Série 2, Bull. I, 71, 1898), who divides this family of the Sporozoa into three tribes, — Disporocysts, Tetrasporocysts, and Polysporocysts, — according to the number of spores in a cyst. Analyses of all known species are given, and also a synoptical table of genera. A number of new or little known species are minutely described and figured; all of them from arthropods, and most of them from myriapods.

The life and work of Fr. Redi, famed equally as a student of letters and of science, are the subject of a recent sketch (*Arch. Par.*, I, 3, 420, 1898). A facsimile of a handsome copperplate portrait and of a medallion, both from the collection of Professor Blanchard, accompany the article. It is rather startling to read in the bibliography of observations on parasites, and in the next sentence to see listed sonnets and dithyrambics!

Dr. H. Wallengren has published in the *Biologisches Centralblatt* an account of the conjugation of *Epistylis simulans*. He finds that the microgonidium is not wholly absorbed by the macrogonidium, the entoplasm and the nuclei alone being retained, while the shrunken ectoplasm is rejected.

The Palolo worm has been carefully studied from the taxonomic standpoint by E. Ehlers (*Göttingen Nachrichten*, math.-phys. Kl., IV, 1898). He identifies it as *Eunice viridis* Gr., and finds the formation of the palolo to be an instance of epitoke, the first observed in this family. The epitokous portions are pelagic and constitute the major part of the worm, only 250 somites out of 544, *e.g.*, being atokous. The paper includes a full discussion of the structure of both parts.

A new Bothriocephalid genus, Scyphocephalus, parasitic in Varanus, has been described by E. Riggenbach (*Zool. Jahrb.*, Syst., XII, 145, 1899). It is characterized by a deep, cup-shaped rostellum, which, however, is not primary, as in Cyathocephalus, but secondary, as shown by the long narrow grooves on the external surface, which are the reduced lateral bothria characteristic of the family. Otherwise the new genus is a true Bothriocephalid.

*Tetracotyle perca fluviatilis* is found by Piana (*Atti. Soc. Ital. Sci. Nat.*, XXXVII, 1898) to be present in 90–95 per cent of the fish in Varese and other Italian lakes, while in some adjacent bodies of water it was lacking. The author looks upon the species as the cause of fish epidemics there.

In Ligula, M. Lühe calls attention (*Centralb. Bakt.*, Abt. I, XXII, 7, 280, 1898) to the existence of marked external segmentation at the anterior end, very similar to that of other cestodes, though the posterior two-thirds is entirely smooth. Strangely, however, the internal structure does not correspond to the segmentation. As the larva is uniformly smooth, the segmentation of the adult must be developed in the intestine of the definite host. It may be interpreted as rudimentary, and points to the degeneration of Ligula from jointed Dibothrian ancestors that have secondarily lost their segmentation.

A statistical report on the "Nematodes Parasitic in Birds," by W. Volz (*Rev. Suisse Zool.*, VI, 1, 189, 1899), shows that hawks, fowls, and crows are most infected both in number of species and of individual parasites. Among the parasites, *Heterakis vesicularis* was the most common, occurring in nine out of twenty-three hosts examined, and *Trichosoma resectum* was found in six hosts. Only two hosts harbored as many as five species each, while the majority of both hosts and parasites manifest individual association.

Two new tapeworms of the domestic fowl from Brazil are described by Magalhâes (*Arch. Par.*, I, 3, 442, 1898), *Davainea oligophora*, a minute form only 3 mm. long, and *D. carioca.*

An intermediate host of *Gigantorhynchus moniliformis* has been found by Magalhâes (*Arch. Par.*, I, 3, 361, 1898) in *Periplaneta americana.* Some interesting observations on the larva of the parasite are recorded in the same article.